

12. (Amended) An apparatus as in claim 6, further comprising a flow of a mixed-feed, wherein a first portion of said mixed-feed flows through said first reaction chamber co-currently with a flow of said flue gas in said combustion chamber, and a second portion of said mixed-feed flows through said second reaction chamber counter-currently with said flow of said flue gas in said convection chamber.

13. (Amended) An apparatus as in claim 7, further comprising a flow of a mixed-feed, wherein a first portion of said mixed-feed flows through said first reaction chamber co-currently with a flow of said flue gas in said combustion chamber, and a second portion of said mixed-feed flows through said second reaction chamber counter-currently with said flow of said flue gas in said convection chamber.

14. (Amended) An apparatus as in claim 12, further comprising a flow of a product synthesis gas, wherein said second portion of said mixed-feed flows in an annular portion of said tube-in-tube, and said product synthesis gas flows in an inner tubular portion of said tube-in-tube counter-currently with said second portion of said mixed-feed.

15. (Amended) An apparatus as in claim 13, further comprising a flow of a product synthesis gas, wherein said first portion of said mixed-feed flows in an annular portion of the tube-in-tube, and said product synthesis gas flows in an inner tubular portion of said tube-in-tube counter-currently with said first portion of said mixed-feed.